

TITLE: Reinforced Rib of a Three-folded Umbrella

FIELD OF THE INVENTION

The present invention relates to a reinforced rib of a collapsible umbrella, which is particularly about an improvement of a three-folded
5 umbrella.

BACKGROUND OF THE INVENTION

Generally, a three-folded umbrella is an umbrella having three ribs to assemble the frame. As in use, the second rib of the frame usually
10 bears the most pressure of wind. It is known that the second rib is always the first broken point when strong wind blows. In order to overcome this prior drawback, the conventional method is to provide the second rib with a different material, such as steel, FRP, or carbon fiber. The strength of such second rib can be increased but the cost in
15 manufacturing and assembling will be high. Moreover, this rib must be made by another independent procedure and it always increases the volume of the collapsible umbrella in closed state.

SUMMARY OF THE INVENTION

20 The present invention is to provide a reinforced rib of a three-folded umbrella, wherein a reinforced rod is provided directly in the U-shape space of the second rib. Hence, the three-folded umbrella with the reinforced rod can provide a perfect strength to resist wind and to prevent from damage. Now, accompanying with the following drawings,
25 the character of the present invention will be described here and after.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1-1 is a perspective view showing a single frame of a three-folded umbrella according to the present invention.

Figure 1-2 is an exploded perspective view showing the second
5 rib and the reinforced rod of Figure 1-1.

Figure 1-3 is an assembled perspective view of Figure 1-2.

Figure 1-4 is a plan view showing the three-folded umbrella in opened state according to the present invention.

Figure 1-5 is a cross-sectional view along line A-A of Figure 1-4.

10 Figure 2-1 to 2-5 are views showing another embodiment with relating state to Figure 1-1 to 1-5 according to the present invention.

Figure 3-1 to 3-5 are views showing a further embodiment with relating state to Figure 1-1 to 1-5 according to the present invention.

Figure 4-1 to 4-5 are views showing still another embodiment
15 with relating state to Figure 1-1 to 1-5 according to the present invention.

Figure 5-1 to 5-5 are views showing a modified embodiment with relating state to Figure 1-1 to 1-5 according to the present invention.

Figure 6-1 to 6-5 are views showing a further modified
embodiment with relating state to Figure 1-1 to 1-5 according to the
20 present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention is to provide an improvement about a three-folded umbrella. In first embodiment in Figure 1-1 to 1-5, it shows a normal three-folded umbrella, which includes three ribs to
25 assemble a frame. The characteristic of the present invention is to provide a reinforced rod (2), which is received directly in the U-shape

space of the second rib (1) of the umbrella and can be fixed therein by the lock (11) formed on the rib (1). The reinforced rod can be made of FRP, carbon fiber, metal, etc. Hence, the second rib (1) with the reinforced rod (2) inside can obtain a better strength for preventing from damage.

5 It can be found that it is unnecessary to change the structure of the original umbrella. The present invention just provides the reinforced rod (2) in a conventional second rib (1) and connects them together. It increases the strength of the second rib to resist strong wind that obtains the improvement and utilization.

10 The above embodiment relates to an application of a manual umbrella and it is only an exemplary. Other embodiment with the same spirit of the present invention will be also claimed in this invention. Such as shown in Figure 2-1 to 2-5, it is an application of an automatic umbrella being similar to Figure 1-1 to 1-5.

15 Figure 3-1 to 3-5 show another manual three-folded umbrella with different structure of frame, which includes an elastic rib (4) extended through the second rib (1). The present invention provides a reinforced U-shape rod (3), which is received in the second rib (1). The U-shape space of the reinforced rod (3) provides the elastic rib (4) passing through.

20 Figure 4-1 to 4-5 show an automatic collapsible umbrella being similar to Figure 3-1 to 3-5.

Figure 5-1 to 5-5 and Figure 6-1 to 6-5 are also modified embodiments, which have the second rib (1) provided with the reinforced rod (3) for increasing the strength of the frame.

25 Accordingly, the improvement of the present invention is to provide a reinforced rod in the second rib of a three-folded umbrella.

Hence, the strength of the second rib is increased that prevents from damage and obtains utilization. Furthermore, since the reinforced rod is received directly in the second rib, the volume of the collapsible umbrella will not be increased.

5 In above embodiments, the reinforced rod is formed a round shape or a U shape. Actually, other modified shape can be permitted in the present invention, such as being semi-circular, D-shaped, triangle, W-shaped, V-shaped, or M-shaped, all of which are recited in the scope of this invention.

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